

of printing unless the same are specified in the governing act. Information has recently gone out that the State Board of Medical Examiners must secure from the next Legislature an amendment to the Medical Practice Act, which will specifically authorize that Board to print its annual report and directory, with certain other information contained therein.

Therefore, wherever indicated, steps should be taken to provide for adequate legal authority in these matters.

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**Large Public Departments and Institutions Should Print Reports.**—Wherefore, why should not printed reports of state agencies, such as the Board of Health, or of large county and municipal hospitals, be printed? The plea of lack of funds is not sufficient. As a matter of fact, reports will make for economies greater in amount than the cost of printing. And surely, when a group of professional men and women annually give gratuitous service having a money value of several millions of dollars, their altruistic endeavors should be rewarded through at least a printed report that could be of scientific worth to themselves, to the institution, and to other communities, also. So slight an expression of appreciation could not only be expected, but should be insisted upon. The medical profession does itself an ill service when it fails to demand proper recognition in such cases.

#### DEATH TAKES ITS TOLL

**Recent Deaths of Prominent Physicians.**—The current issue of CALIFORNIA AND WESTERN MEDICINE contains obituaries of several members who, during their years of professional service, left a deep impress upon the communities in which they practiced.\* The contributor-friends of the deceased have thus made it possible for readers to acquaint themselves with the lives and work of such men as Lemuel P. Adams of Oakland, Philip King Brown of San Francisco and Guy Cochran of Los Angeles, each of whom entered medicine with a line of forbears who had been disciples of the healing-art guild. It is good to read of these men and others like them who, in the discharge of their daily obligations, were true physicians to the honor of the profession they had espoused and themselves. Younger men may well take the time to peruse the tributes because to read them is to inspire oneself to reaffirm allegiance to a profession which, in power for service to mankind, has no limit.

**Other State Association and Component County Society News.**—Additional news concerning the activities and work of the California Medical Association and its component county medical societies is printed in this issue, commencing on page 273.

\* For obituaries, see page 285.

## EDITORIAL COMMENT†

### DUBOS' "GRAMICIDIN"

The successful treatment of chronic bovine mastitis, by the intramammary injections of Dubos' "gramicidin," is currently reported by Little and his coworkers<sup>1</sup> of the Department of Animal Pathology, Rockefeller Institute, Princeton, New Jersey.

About two years ago, Dubos<sup>2</sup> succeeded in isolating a Gram-positive, spore-bearing, aerobic soil bacillus capable of lysing pathogenic Gram-positive microorganisms. On autolysis cultures of this soil bacillus yielded an enzyme which, in even minute quantities, would kill or completely inhibit *in vitro* growth of all pathogenic Gram-positive bacteria thus far tested. From this crude autolysate the active principle was eventually isolated: a protein-free, alcohol-soluble, water-insoluble substance, a hundred times more potent than the initial product. Stable aqueous solutions (or suspensions) of this purified "gramicidin" can be prepared by diluting alcoholic solutions with relatively large volumes of distilled water, or 5 per cent glucose.

Preliminary therapeutic tests showed that 0.005 milligram of this purified germicide, injected intraperitoneally into white mice, protect them against 10,000 fatal doses of simultaneously injected pneumococci or streptococci. The gramicidin, however, is almost completely inactive when administered by the intravenous, intramuscular or subcutaneous routes. Its only apparent therapeutic promise, therefore, is as a local antiseptic.

Ideal conditions for its clinical test were seen in chronic bovine mastitis caused by *Streptococcus agalactiae*. This type of mastitis is almost invariably confined to one or more infected quarters of the udder, and is rarely complicated by a demonstrable systemic infection. A number of cases of chronic bovine mastitis were, therefore, selected and studied bacteriologically over a period of several weeks. During this time the number of streptococci remained fairly constant in milk drawn from the infected quarters, the usual count being in the neighborhood of 100,000 microorganisms per cubic centimeter. Following the morning milking at the end of this observation period, the residual milk in the cistern and teat was flushed out with 100 to 200 cubic centimeters of dilute gramicidin, and 800 to 900 cubic centimeters gramicidin solution injected under pressure. The solution was allowed to remain in the infected quarter till the next milking. The routine gramicidin solution consisted of 60 to 240 milligrams of the purified product in 1,000 cubic centimeters of double distilled water.

Within one hour after this injection the treated quarter of the udder became extended, and the

†This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comments by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

<sup>1</sup> Little, R. B., Dubos, R. J., and Hotchkiss, R. D.: *Proc. Soc. Exper. Biol. and Med.*, 44:444 (June), 1940.

<sup>2</sup> Dubos, R. J.: *J. Exper. Med.*, 70:1-11, 249, 1939; *J. Biol. Chem.*, 132:791, 1940.

rectal temperature began to increase. The temperature usually reached a maximum of about 41 degrees centigrade by the end of five to six hours. The acute swelling then gradually subsided. The rectal temperature usually returned to normal by the time of the evening milking.

In five of the nine cases of streptococcus mastitis thus treated, the microorganisms disappeared completely from the quarter milk after the first injection. The fact that the streptococci had been eliminated was established by a daily bacteriologic examination over periods ranging from fifteen to eighty-one days. In other cases, from two to five treatments were necessary for complete sterilization. Most of these refractory cases were moderately indurated. In two highly indurated cases, repeated injections of the gramicidin markedly decreased the streptococcus count, but failed to sterilize the infected quarter.

No tests of the Dubos "gramicidin" have thus far been reported in human medicine.

P. O. Box 51.

W. H. MANWARING,  
Stanford University.

#### CARDIOTELEROENTGENOGRAPHY

The determination of the cardiothoracic relationship is not a generally uniform procedure among cardiologists and roentgenologists, as established by the various methods in use, and according to the opinions given by a number of eminent roentgenologists and cardiologists.

The methods most commonly in vogue to determine the cardiothoracic relationship are: (a) The transverse cardiac diameter in comparison with the maximum internal thoracic diameter, one-half, a trifle more or less, being the accepted standard; (b) the standard transverse cardiac diameter for weight at a given age; (c) the standard transverse cardiac diameter for height at a given age; (d) calculative determinations in relation to size of heart, the height, weight, and age; (e) and the type of chest, whether sthenic, hypersthenic, or hyposthenic, in relation to cardiac conformation; also Groedel's six-point measurements to establish cardiac dimensions.

Bryant, many years ago, classified the genus homo into three types: (1) The omnivorous, or normal type; (2) the carnivorous, or lean and lanky type; (3) the herbivorous, or thick-set, broad, muscular, and obese type. These types Bryant compared with prototypes of the animal kingdom, as well as setting forth facts, established by hundreds of anatomical dissections, that skeleton and tissue structures of each type were distinctive. And so the heart and thoracic cage must be considered in studying teleroentgenograms.

In connection with the consideration of anomalous types, due cognizance might rightly be given to the opinion of one authority in cardioteleroentgenography, as follows: "It is the opinion that cardiac enlargement or hypertrophy can and does occur without altering the permissible cardiothoracic ratio. It can readily be pictured that a cardiothoracic ratio that would normally be only about 35 per cent, as

occurs in hyposthenic individuals, could easily be hypertrophied to 45 per cent and still be within the so-called range of normal." And those who blindly follow the cardiothoracic relationship, without considering anomalies in cardiac or thoracic cage structure, often err in their determinations.

It should also be remembered that, regardless of the type of cardiothoracic relationship, there are distinctive changes, of varying degree, in the cardiac configuration, resulting from particular prevailing pathology. There is no escape from such pathologic developments.

It appears to be the prevailing opinion "that no one system is absolutely foolproof." And again quoting from the reply of an eminent authority: "... and, after all, the radiologist's experience plays a large rôle in the determination of cardiac changes, as represented in the roentgenogram, and mechanical measurements have not yet superseded this experience."

In conclusion, where the cardiothoracic ratio is used in determining whether cardiac enlargement, with or without hypertrophy, exists, one should avail himself of good judgment and common sense in the consideration of anomalous types.

1155 Jones Street.

JOHN F. MARTIN,  
San Francisco.

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*National Health Library.*—The National Health Library, which completed two decades of service this year, announces its removal from the RCA Building in Rockefeller Center to 1790 Broadway, New York City. Since its establishment twenty years ago, this Library has brought together one of the best collections of source material in the United States on public health, sanitation, health education and related subjects. It includes 6,000 volumes and 30,000 pamphlets. More than 500 medical and public health periodicals are received regularly from all parts of the world.

Administered by the National Health Council, the Library is intended primarily for the use of the seventeen health organizations which are members of the Council. Individuals who are not members of the supporting organizations may have the privilege of using the Library by paying a small annual fee.

Members from all over the country avail themselves of the privilege of borrowing books from the Library. Nurses and public health workers in small towns in which there are no libraries are especially grateful for the service. Material may be found at the National Health Library which might take days and even weeks to unearth elsewhere. The indexing of this material makes it of especial value for research workers.

To make the current material useful the magazines are indexed in a card catalog. Every week a mimeographed list of the more important articles is issued under the title: *The Library Index: a weekly index to current periodical literature in the field of public health.* This publication is available to the public for a small annual subscription.

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In no place is tuberculosis at so low a level that we may safely, and in the interest of economy, relax the intensity of the tuberculosis control program. On the contrary, because the opportunity for real control of the tuberculosis situation seems more encouraging than ever, this is the time to intensify efforts rather than relax them.—Harry Mustard, M. D.